

Performance Comparison of Non-Binary RA and QC-LDPC Codes

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Abstract : Repeat-Accumulate (RA) codes are subclass of LDPC codes with fast encoder structures. In this paper, we consider a nonbinary extension of binary LDPC codes over $GF(q)$ and construct a non-binary RA code and a non-binary QC-LDPC code over $GF(2^4)$, we construct non-binary RA codes with linear encoding method and non-binary QC-LDPC codes with algebraic constructions method. And the BER performance of RA and QC-LDPC codes over $GF(q)$ are compared with BP decoding and by simulation over the Additive White Gaussian Noise (AWGN) channels.

Keywords : non-binary RA codes, QC-LDPC codes, performance comparison, BP algorithm

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